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COMPOSITIONS AND METHODS INVOLVING AN ESSENTIAL STAPHYLOCOCCUS
AUREUS GENE AND ITS ENCODED PROTEIN

ABSTRACT OF THE DISCLOSURE

This invention relates to newly identified polynucleotides and polypeptides, and their production and uses, as well as their variants, agonists and antagonists, and their uses. In particular, the invention relates to polynucleotides and polypeptides of a *Staphylococcus aureus* (*S. aureus*) DnaI related protein, as well as its variants. The invention also relates to a specific interaction between the *S. aureus* DnaI related protein or specific regions thereof, and a growth-inhibitory protein encoded by the *S. aureus* bacteriophage 77 genome. The phage open reading frame (ORF) product interacts with amino acids 150 – 313 of *S. aureus* DnaI polypeptide, and the invention relates to the use of this interaction target site as the basis of drug screening assays. Accordingly, the invention provides a method for the inhibition of bacterial growth, and the treatment of bacterial infection via the inhibition of DnaI.